

CLAIMS

I claim:

1. A separation tank for treating a flowing stream of water, said separation tank comprising:

a container having a bottom, sidewalls and a cover,
an inlet formed in one of said sidewalls of said container to allow water to pass into said container,

an outlet formed in another of said sidewalls of said container to allow water to pass out of said container;

a low flow treatment path to treat water passing from said inlet to said outlet through said low flow treatment path, said low flow treatment path having a low flow treatment means to remove both floating and non-floating material from the water passing through said low flow treatment path,

a high flow treatment path to treat water passing from said inlet to said outlet through said high flow treatment path, said high flow treatment path having a high flow treatment means to remove both floating and non-floating material from the water passing through said high flow treatment path, and

an opening located between said low flow treatment path and said high flow treatment path to allow water exceeding a predetermined flowrate to flow through said opening to pass said water from said low flow treatment path into said high flow treatment path.

2. The separation tank as defined in claim 1 wherein said low flow treatment path comprises a first treatment chamber and a second treatment chamber, and said low flow treatment means includes a partition separating said first treatment chamber from said second treatment chamber, said partition having at least one opening located at a predetermined height above the bottom of said container to allow water to flow through said at least one opening while preventing non-floating materials from passing from said first treatment chamber into said second treatment chamber.

3 The separation tank as defined in claim 2 wherein said at least one opening in said partition separating said first treatment chamber from said second treatment chamber has at least two openings with one of said at least two openings being vertically spaced above the other of said at least two openings.

4. The separation tank as defined in claim 2 wherein said low flow treatment means further includes a partition separating said second treatment chamber from said outlet, said partition having at least one standpipe affixed thereto extending downward to a lower inlet that is located a predetermined height above the bottom of said container to allow water to flow through said at least one standpipe while preventing floating materials from passing from said second treatment chamber to said outlet.

5. The separation tank as defined in claim 1 wherein said high flow treatment means comprises a high baffle to prevent floating materials from passing said high baffle and a low baffle to prevent non-floatable material from passing said low baffle.

6. The separation tank as defined in claim 2 wherein said container further comprises a filter/recharge chamber having a filter contained therein to filter water from said second treatment chamber and to discharge at least some of that filtered water into the surrounding ground by means of a groundwater conveyance system.

7. The separation tank as defined in claim 2 wherein said container further comprises a filter/recharge chamber having a filter contained therein to filter water from said second treatment chamber and to discharge at least some of that filtered water to said outlet chamber.

8. The separation tank as defined in claim 2 wherein said container further comprises a filter/recharge chamber that receives water from said second treatment chamber and channels at least some of the water from said second treatment chamber to said outlet chamber.

9. The separation tank as defined in claim 2 wherein said container further comprises a filter/recharge chamber that receives water from said second treatment chamber and discharges at least some of that water into the surrounding ground by means of a groundwater conveyance system.

10. The separation tank as defined in claim 6 wherein said groundwater conveyance system comprises at least one perforated pipe.

11. The separation tank as defined in claim 1 wherein said opening located between said low flow treatment path and said high flow treatment path is a high flow weir wherein the water exceeding the predetermined flow passes over said high flow weir.

12. A separation tank for treating a flowing stream of water, said separation tank comprising:

- a container having a bottom, sidewalls and a cover and having formed therein a low flow treatment path and a high flow treatment path,

- an inlet formed in one of said sidewalls of said container to allow water to enter said container,

- an outlet formed in another of said sidewalls of said container to allow water to be discharged from said container;

- said low flow treatment path and said high flow treatment path extending from said inlet to said outlet,

- a low flow treatment means in said low flow treatment path to prevent large particles from passing through the low flow path to said outlet,

- a low flow treatment means in said low flow treatment path to prevent floatable materials from passing through the low flow path to said outlet,

- an opening located between said low flow treatment path and said high flow treatment path to allow water exceeding a predetermined flow rate to flow through said opening to pass said water from said low flow treatment path into said high flow treatment path;

- a treatment means in said high flow treatment path to prevent non-floatable materials and floatable materials from passing through the high flow path to said outlet,

- a filter/recharge chamber formed in said low flow treatment path, said filter/recharge chamber having a filter, said filter having an upstream side receiving the water and discharging the water at a downstream side after passing through the filter.

13. The separation tank as defined in claim 12 wherein said filter/recharge includes a groundwater conveyance system to allow at least some of the water discharged from the downstream side of said filter to pass out of said container,

14. The separation tank as defined in claim 13 wherein said groundwater conveyance system comprises at least one perforated pipe extending outwardly from said filter/recharge chamber.

15. The separation tank as defined in claim 12 wherein said low flow treatment path includes a partition across said low flow treatment path, said partition having at least one opening therein, said at least one opening being vertically positioned so as to prevent non-floatable particles from passing through said low flow treatment path to said outlet.

16. The separation tank as defined in claim 12 wherein said low flow treatment path includes a partition across said low flow treatment path, said partition having at least one standpipe affixed thereto having a lower end extending downwardly into the water flowing through said low flow treatment path to prevent floatable materials from passing through said low flow treatment path to said outlet.

17. The separation tank as defined in claim 12 wherein said opening located between said low flow treatment path and said high flow treatment path comprises an upper weir located at a predetermined height to allow water exceeding a predetermined flow rate to flow over said weir to pass said water from said low flow treatment path into said high flow treatment path.

18. The separation tank as defined in claim 12 wherein said treatment means in said high flow treatment chamber comprises a high baffle and a low baffle wherein floatable materials are prevented from passing by said high baffle and non-floatable materials are prevented from passing by said low baffle.

19. The separation tank as defined in claim 12 wherein said filter comprises a wall having a plurality of passageways through said wall extending from said upstream side to said downstream side.

20. The separation tank as defined in claim 12 wherein said filter comprises a plurality of filter blocks having a plurality of passageways through each filter block extending from said upstream side to said downstream side.

21. The separation tank as defined in claim 20 wherein said filter blocks are squared S configurations and can be interlocked together to form a plurality of adjacent filter blocks, wherein the plurality of said passageways of one filter block align with the plurality of

passageways of an adjacent filter block to create a continuous path for water to pass through said filter.

22. The separation tank as defined in claim 12 wherein at least some of the water at the downstream side of said filter is adapted to pass to said outlet.

23. A method of treating a stream of water by means of a separation tank, said method comprising the steps of:

- providing a container having a bottom, side walls, a cover, an inlet for allowing water to enter the container and an outlet for discharging water from the container, said container having a low flow treatment path for water to pass from the inlet to the outlet and a high flow treatment path for water to pass from the inlet to the outlet;

- conveying water through the inlet into the container;

- treating the water passing through the low flow treatment path to remove floatable and non-floatable materials;

- conveying the water that exceeds a predetermined flow rate from the low flow treatment path into the high flow treatment path;

- treating the water passing through the high flow treatment path to remove floatable and non-floatable materials, and

- discharging the water from the container through the outlet.

24. The method of claim 23 wherein the step of conveying the water from the low flow treatment path into the high flow treatment path comprises passing the water over a weir at a predetermined height.

25. The method of claim 23 wherein the step of treating the water as the water passes through the low flow treatment path includes passing the water through an opening located a predetermined height above the floor to prevent non-floatable materials from passing through the low flow treatment path to the outlet.

26. The method of claim 23 wherein the step of treating the water as it passes through the low flow treatment path comprises passing the water through a standpipe having a lower inlet located below the level of water to prevent floatable materials from passing through the low flow treatment path to the outlet.

27. The method of claim 23 wherein the method further comprises the step of filtering at least some of the water passing through the low flow path and discharging at least some of that filtered water through a groundwater conveyance system.

28. The method of claim 23 wherein the method further comprises the step of conveying at least some of the water passing through the low flow path through a groundwater conveyance system.

29. The method of claim 23 wherein the method further comprises the step of filtering at least some of the water passing through the low flow path and discharging at least some of that filtered water to the outlet.